



Central Alaska Network Park Units – Climate Drivers Table



Climate Variable	Projected Change by 2050	Projected Change by 2100	Patterns of Change	Confidence	Source
Temperature	+1.9°C ± 0.5°C	+3.7°C ± 0.8°C	More pronounced in N & in autumn-winter	>95% for increase	IPCC (2007); SNAP/UAF
Precipitation (rain and snow)	↑ 33-109 mm	↑ 64-220 mm	Increased % falls as rain in shoulder seasons	High uncertainty in timing of snow onset and melt	AMAP/SWIPA; SNAP/UAF
Freeze-up Date	4-11 days later	9-26 days later	Largest change near coasts	>90%	SNAP/UAF
Length of season with average temps > freezing	↑ 7-13 days	↑ 18-35 days	Largest change near coasts	>90%	IPCC (2007); SNAP/UAF
River and Stream Temps	↑ 1–3°C	↑ 2–4°C	Earlier breakup, higher summer temps	>90%	Kyle & Brabets (2001)
Water Availability	↓ 0–20%	↓ 10–40%	Longer summer, thicker active layer	>66% varies by region	SNAP/UAF; Wilderness Society
Relative Humidity	0% ±10% ↑ or ↓	0% ±15% ↑ or ↓	Absolute humidity increases	50% <i>as likely as not</i>	SNAP/UAF
Wind Speed	↑ 2–4%	↑ 4–8%	More pronounced in winter & spring	>90% for increase	Abatzoglou & Brown
PDO	Uncertain	Uncertain	Major effect on Alaska temps in cold season	High degree of natural variation	Hartmann & Wendler (2005)
Extreme Events: Temperature	3-6x more warm events; 3-5x fewer cold events	5-8x more warm events; 8-12x fewer cold events	↑ warm events, ↓ cold events	>95% likely	Abatzoglou & Brown; Timlin & Walsh (2007)
Extreme Events: Precipitation	Change of –20% to +50%	Change of –20% to +50%	↑ winter ↓ spring	<i>Uncertain</i>	Abatzoglou & Brown
Extreme Events: Storms	↑ frequency/intensity	↑ frequency/intensity	Increase	>66%	Loehman (2011)